

## PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

## (PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference<br>212283  | <b>FOR FURTHER ACTION</b>                                |  |
| See Form PCT/PEA/416   |  |  |
| International application No.<br>PCT/EP2004/007058   | International filing date (day/month/year)<br>28.06.2004 | Priority date (day/month/year)<br>30.06.2003 |
| International Patent Classification (IPC) or national classification and IPC<br>A61C8/00 - |  |  |
| Applicant<br>TEN BUGGENKATE CHIRURGIE B.V. et al.  |  |  |

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|---|
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> <i>(sent to the applicant and to the International Bureau)</i> a total of 3 sheets, as follows:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> <p>b. <input type="checkbox"/> <i>(sent to the International Bureau only)</i> a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> |
| <p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the opinion</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>  |

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|--|---|
| Date of submission of the demand<br>28.01.2005   | Date of completion of this report<br>20.10.2005                       |
| Name and mailing address of the International preliminary examining authority:<br><br>European Patent Office<br>D-80298 Munich<br>Tel. +49 89 2399 - 0 Tx: 523656 epmu d<br>Fax: +49 89 2399 - 4465 | Authorized Officer<br><br>Lickel, A<br>Telephone No. +49 89 2399-6068 |



# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/EP2004/007058

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

### Description, Pages

1-13 as originally filed

### Claims, Numbers

1-12 received on 30.05.2005 with letter of 27.05.2005

### Drawings, Sheets

1/12-12/12 as originally filed

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

- The amendments have resulted in the cancellation of:
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):
- This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

|                               |             |      |
|-------------------------------|-------------|------|
| Novelty (N)                   | Yes: Claims | 1-12 |
|                               | No: Claims  |      |
| Inventive step (IS)           | Yes: Claims | 1-12 |
|                               | No: Claims  |      |
| Industrial applicability (IA) | Yes: Claims | 1-12 |
|                               | No: Claims  |      |

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

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**Box No. VII Certain defects in the international application**

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The following defects in the form or contents of the international application have been noted:

**see separate sheet**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following documents:  
D1: EP-A-0 974 311 (PERONA ALVARO MANUEL) 26 January 2000 (2000-01-26)  
D5: US 2002/102518 A1 (MENA RAUL R) 1 August 2002 (2002-08-01)
2. The amendments of claim 1 are allowable in the sense of Article 19(2) PCT, as they are supported by originally filed claims 2 and 7, as well as fig. 2.
3. The document D5 is regarded as being the closest prior art to the subject-matter of claim 1 and shows (the references in parentheses applying to this document):

An intra-osseous implant (10) comprising one intra-osseous part (14) intended for placement in bone tissue having an apical side and a cervical side and composed of a body friendly material, which part is provided on its circumferential surface with a screw thread (18) running in the direction of and ending at the apical end, and a support part (12) present at said cervical side of said at least one intra-osseous part, intended for supporting a prosthetic element, wherein the intra-osseous part is provided with a groove (22) extending in longitudinal direction over the entire length of the intra-osseous part, interrupting the screw thread.

- 3.1 The subject-matter of claim 1 differs from D5 in that multiple grooves, extending in longitudinal direction, interrupt the screw thread into multiple thread parts, whereby said thread parts serve as retention elements allowing the placement of the implant in longitudinal direction into bone tissue but preventing the removal in opposite longitudinal direction, which allows a quick and stable insertion of the implant into a bone.
- 3.2 Document D5 indicates the possibility of applying more than 1 longitudinal groove (par. 19, "... at least one transverse slot .."), from which the skilled practitioner, in consideration of the multiples slots as disclosed in D1, could conclude to provide an implant, as known from D5, with multiple slots. However, each of the documents D1

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and D5 teach the use of a conventional screw thread which requires a rotational insertion of the implant rather than a placement in longitudinal direction.

- 3.3 Thus, the subject-matter of claim 1 fulfills the requirements of Article 33(2) and (3) PCT for novelty and inventive step.
4. Claims 2-12 are dependent on claim 1 and thus also fulfill the requirements of Article 33(2) and (3) PCT.
5. The industrial applicability of an implant according to claims 1-12 is self expiatory (Article 33(4) PCT).

**Re Item VII**

6. The features of the claims are not provided with reference signs placed in parentheses to increase the intelligibility of the claims (Rule 6.2(b) PCT).
7. Documents D1 and D5 are not identified in the description (Rule 5.1(a)ii PCT).

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## CLAIMS

(51)

1. An intra-osseous implant for placement in bone of a human or animal body comprising at least
  - 5 one intra-osseous part intended for placement in said bone tissue having an apical side and a cervical side, and composed of a body friendly material, which part is provided on its circumferential surface with a screw thread running in the direction of and ending at the apical end; and
  - 10 a support part present at said cervical side of said at least one intra-osseous part intended for supporting a prosthetic element, **characterized in that** the intra-osseous part is provided with one or more multiple grooves extending in longitudinal direction and over the entire length of the intra-osseous part interrupting the screw thread into multiple interrupted screw thread parts, said multiple interrupted screw thread parts serving as retention elements allowing the placement of the implant in longitudinal direction into said bone tissue but preventing the removal of the implant in opposite longitudinal direction out of said bone.
  - 15 2. An intra-osseous implant according to claim 1, **characterized in that** the groove extends over the entire length of the intra-osseous part of the implant.
  - 20 2. An intra-osseous implant according to claim 1 or 2, **characterized in that** the depth of the groove is smaller, equal or greater than the height of the screw thread.
  - 25 3. An intra-osseous implant according to any one of the preceding claims, **characterized in that** the width of the groove varies in the direction of the apical side of said intra-osseous part and more in particular widens.
  - 30 4. An intra-osseous implant according to any one of the preceding claims, **characterized in that** the depth of the groove varies in

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the direction of the apical side of said intra-osseous part and more in particular becomes larger.

5. An intra-osseous implant according to any one of the preceding claims, characterized in that the height of the screw thread varies in the direction of the apical side of said intra-osseous part and more in particular becomes smaller.

7. ~~An intra-osseous implant according to any one of the preceding claims, characterized in that the intra-osseous part comprises multiple grooves.~~

10. 6. An intra-osseous implant according to any one of the preceding claims, characterized in that the grooves are present in an equidistant manner in the circumferential surface.

15. 7. An intra-osseous implant according to any one of the preceding claims, characterized in that the intra-osseous part has a cylindrical cross section.

8. An intra-osseous implant according to any one of the preceding claims, characterized in that the intra-osseous part has a near cylindrical cross section, for example a conical, elipsonal, oval cross section.

20. 9. An intra-osseous implant according to any one of the preceding claims, characterized in that the intra-osseous part has a polygonal cross section, for example a hexagonal or octagonal cross section.

25. 10. An intra-osseous implant according to any one of the preceding claims, characterized in that the intra-osseous part becomes smaller in the apical direction.

30. 11. An intra-osseous implant according to any one of the preceding claims, characterized in that the support part is positioned under an angle on said intra-osseous part with respect to the direction of implant.

12. An intra-osseous implant according to any one of the

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preceding claims, characterized in that the implant is a dental implant, wherein said support part is provided with at least one bevel (flattening concavity) on its circumferential edge.

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